

NATURAL RESOURCES CONSERVATION SERVICE
Wyoming
CONSTRUCTION SPECIFICATIONS
for
WASTE STORAGE POND

(Owner/Operator)	(Project Title)
GENERAL	EXCAVATION
<p>Installation shall be accordance with an approved design and plan. Details of construction shown on the drawings but not included herein are considered as a part of this specification.</p>	<p>Cutoff Trench – The cutoff trench shall be excavated to the lines and grades shown on the drawings or as staked in the field. The trench shall be kept free of standing water during backfill operations.</p>
<p>Construction operations shall be carried out in a manner to ensure that erosion and air and water pollution are minimized and are less than legal limits. Construction activities shall be in accordance with U. S. Department of Labor, Occupational Safety and Health Administration requirements.</p>	<p>Spillway – The completed spillway excavation shall conform to the grades, bottom width and side slopes shown on the drawings.</p>
SITE PREPARATION	<p>Outlet Conduit – Trench excavation for installation of an outlet conduit shall be made in original ground or in compacted fill provided the bottom of the trench is at or near undisturbed foundation.</p>
<p>Clearing and Stripping – area to be occupied by the embankment, ponded area or borrow areas must be cleared of all trees, brush, logs, and sod and removed from the site.</p>	<p>Use of Excavated Material – Excavated material suitable for the fill embankment and earth liner when specified shall be placed as shown on the drawings and/or staked in the field.</p>
<p>Embankment Foundation – All channel banks and sharp breaks shall be sloped to no steeper than 1 horizontal to 1 vertical. All topsoil containing excessive amounts of organic matter shall be removed The surface of the foundation area shall be thoroughly scarified before placement of the embankment material.</p>	<p>Excavated material excess to construction requirements may be hauled from the site or placed and shaped not less than 12 feet from the edge of the excavation as shown on the drawings.</p>

COMPACTED EARTHFILL

Material – All fill materials shall be obtained from approved borrow areas and from excavations required for other parts of the work. The selection, blending, routing, and disposition of materials within the embankment and/or earth liner shall be subject to the approval of the technician. Fill materials shall contain no sod, brush, roots, or other perishable or unsuitable material. Cobbles and rock fragments having a maximum dimension of more than six (6) inches shall be removed from the materials prior to compaction.

Material for liners shall be obtained from approved sources. Materials shall meet minimum requirements as noted on the drawings or in additional specifications.

Placement – The placing and spreading of the fill material shall be started at the lowest point of the foundation. The fill shall be brought up in approximately horizontal layers parallel to the axis of the dam and of such thickness that the required compaction can be obtained with the equipment used.

Fill placed around structures will be brought up at approximately uniform height on all sides of the structure.

Moisture – The moisture content of fill material shall be maintained at or above optimum water content for compaction, within the limits required to prevent the adherence of the fill material to the treads and tracks of equipment, and ensure the crushing and blending of the soil clods.

As far as practicable the material shall be brought to the proper water content in the borrow pit before excavation. Supplemental water, when required, may be applied by sprinkling the materials on the fill. Uniform

distribution of the moisture shall be obtained by discing, blading, or other approved method prior to compaction.

Compaction Methods – Compaction shall meet the requirements of the method designated and described below unless otherwise specified on the drawings or described under ADDITIONAL SPECIFICATIONS.

1. Sheepsfoot roller – The maximum layer thickness shall be eight (8) inches before compaction. The roller shall have staggered, uniformly spaced tamping feet and be equipped with suitable cleaners. The weight of the roller shall be not less than 2,500 pounds per foot of width. The maximum speed of the compaction equipment shall be 3 miles per hour. The entire surface of each layer placed should receive six passes of this equipment to attain the necessary compaction. Adjustment in the number of passes may be necessary during construction.

2. Pneumatic tired equipment – The maximum layer thickness before compaction shall be six (6) inches. The hauling and spreading equipment shall be routed over the fill area so the wheels of this equipment pass over all of the surface of each lift before a new lift is placed.

3. Track laying equipment (Bulldozer) – The maximum layer thickness before compaction shall be four (4) inches. The tracks of the equipment must pass over all of the surface of each lift before a new lift is placed.

Compaction Checking – Compliance with compaction requirements will be determined by observation of performance for Methods 1, 2, and 3.

Fill not meeting the specified requirements shall be reworked or removed and replaced with acceptable fill.

LINERS

Material for an earth liner shall be of the soil material and placed to the thickness specified on the drawings. Material shall be placed on the wet side of optimum moisture content for compaction. Material shall be compacted per Section "COMPACTED EARTHFILL."

EQUIPMENT OPERATION

Heavy compaction equipment shall not be operated within two (2) feet of any structure. Hand directed tampers or compactors shall be used on areas not accessible to heavy compaction equipment and within two (2) feet of any structure. Fills compacted in this manner shall be placed in layers not greater than four (4) inches in thickness before compaction and shall meet the same density requirements as for adjacent areas.

Passage of heavy equipment will not be allowed over any type of conduit until the compacted backfill has been placed over the top surface of the structure equal to one-half the clear span width of the structure or pipe, or two (2) feet, whichever is greater.

Compaction of backfill adjacent to structures shall not be started until after the expiration of the following minimum time interval after placement of concrete.

Walls and Counterforts	10 days
Antiseep collars, conduits and cantilever outlet bents	3 days

CONCRETE

Concrete work shall meet the requirements of Construction Specification 313A, Waste Storage Structure.

CONDUITS

Conduits shall be new pipe of the type pressure rating and size shown on the drawings. Any damage to protective coatings shall be repaired prior to backfilling.

The pipe shall be firmly and uniformly bedded throughout its length and shall be installed to the lines and grades shown on the drawings.

Cutoff collars shall be installed to the dimensions and at the locations shown on the drawings.

FENCING

Posts may be steel or wood. Steel posts should be a minimum of 6.5 feet long and wood posts a minimum of 7.5 feet long. Wood posts shall be cedar, redwood, or other decay resistant wood or treated with pentachlorophenol or creosote. Minimum top diameter for wood posts is four (4) inches.

All posts shall be firmly set into the ground, braced at all corners and turns, and spaced as shown on the drawings, but not to exceed 20 feet apart.

Barbed wire shall be a minimum of two strands of 12-1/2 gage, galvanized wire.

Woven wire shall be galvanized, aluminum or plastic coated. Top and bottom wires shall be a minimum of 11 gage and

intermediate line and stay wires shall be a minimum of 14-1/2 gage.

ADDITIONAL SPECIFICATIONS

Wire ties, clamps, staples, and related fence hardware shall have equivalent coating to the fencing being installed.

Pole or timber fence equivalent to standard barbed wire fence in usefulness and durability may be used as an alternative when authorized by the responsible technician.

SEEDING

Area – Seed the embankment, borrow areas, spillway, other disturbed areas. Seedbed preparation, seed mixture, fertilizer, mulch, and application rates shall be in accordance with the recommended seeding plan.

RIPRAP

Rock riprap when shown on the drawings shall be angular, dense, sound, and free from cracks, seams, and other defects conducive to accelerated weathering.

The rock shall be graded so the installed riprap will consist of a dense layer of interlocked rock.

Bedding material shall consist of a sand-gravel mixture such as would be used in a concrete mix.

CLEANUP

Cleared material, sod, and unsuitable soil shall be removed from the construction site or otherwise disposed of so that runoff water will not carry it into the reservoir or spillway area. Waste earth material shall be smoothed and seeded.